

**BEST AVAILABLE COPY****CLAIMS:**

1. An acoustic horn comprising a tapered structure having a base end (51) and an apex end (52), the tapered structure being formed from a sheet of foldable material, and comprising a wall member having a plurality of fold lines (72, 73, 74, 75) defining the edges of a plurality of juxtaposed panels (76, 78, 80), characterised in that at least two of the fold lines (73, 74) are arcuate to form a non-planar panel (55) bound by said arcuate fold lines both base end (51) and apex end (52) being open.

2. An acoustic horn according to claim 1 wherein the structure further comprises an internal channel (100) within the acoustic horn.

3. An acoustic horn according to either of claims 1 and 2 wherein the tapered structure has a cross-sectional area which increases non-linearly with distance from the apex end (52).

4. An acoustic horn as claimed in any one of claims 1 to 3, wherein at least one pair of the arcuate fold lines converges towards the apex end (52) to contribute to a general convergence of the tapered structure.

5. An acoustic horn as claimed in any one of claims 1 to 4, wherein at least one pair of the arcuate fold lines (73, 74) converges towards the base end (51) of the structure such that the arcuate fold lines (73, 74) converge to a point (59) at or near the base end (51).

6. An acoustic horn as claimed in any one of the preceding claims, wherein the non-planar panel (55) is outwardly concave and has mirror symmetry about a longitudinal axial plane substantially perpendicular to the panel (55).

7. An acoustic horn as claimed in any one of claims 1 to 6, wherein the wall member includes a second non-planar panel (54), opposed to the first non-planar panel (55), which second non-planar panel (54) is also outwardly concave.

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8. An acoustic horn as claimed in any one of the preceding claims, wherein the first and second panels (54, 55) are of different size from each other and one or both converge to a point (59) proximate the base end (51).

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9. An acoustic horn as claimed in any of the preceding claims, wherein fold lines (58) are disposed in the at least one non-planar panel (54, 55), thereby allowing the tapered structure to be folded flat.

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10. An acoustic horn as claimed in any of the preceding claims, wherein the wall member includes two further opposing non-planar panels (77, 79), joining the first and second non-planar panels (54, 55), and being generally outwardly convex.

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11. An acoustic horn as claimed in any of the preceding claims, wherein the first and second non-planar panels (54, 55) are generally elliptically shaped.

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12. An acoustic horn as claimed in any of claims 1 to 10, wherein the first and second non-planar panels (54, 55) are generally petal-shaped.

30 13. An acoustic horn as claimed in any one of claims 1 to 10, wherein the first and second non-planar panels (54, 55) are generally trapezoidal shaped with the non-parallel sides (71, 72, 73, 74) being arcuate.

35 14. An acoustic horn as claimed in any one of claims 2 to 13, wherein the internal channel (100) is integrally formed with the tapered structure.

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15. An acoustic horn as claimed in any one of claims 2 to 14, wherein the internal channel (100) is formed by folding a portion of the sheet of foldable material.

5 16. An acoustic horn as claimed in any one of claims 2 to 15, wherein at least one orifice or notch is formed in a wall of the internal channel (100) to support a vibrating element (118).

10 17. An acoustic horn as claimed in claim 16, wherein the vibrating element (118) is formed from a thin paper, plastics or metal sheet for being forced into vibration when a user modulates a flow of air into the horn.

15 18. An acoustic horn as claimed in claims 16 and 17, wherein the foldable material is laminated and the laminating material extends over the orifice or notch to form the vibrating element (118).

20 19. An acoustic horn as claimed in any of the preceding claims where the structure generally comprises two flat planar portions being joined at opposed edges of the flat structure.

25 20. An acoustic horn as claimed in claim 19, wherein a single adhesive line (13) is provided such that the two flat planar portions can be held together when formed from one or more sheets of foldable material.

21. An acoustic horn as claimed in claim 19, wherein the line 30 of adhesion (13) is a straight line.

22. An acoustic horn as claimed in claims 20 or 21, wherein the adhesive line is located along an edge of the flat structure.

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23. An acoustic horn as claimed in any of the preceding claims, wherein the tapered structure comprises at least

first, second and third wall portions, wherein the wall portions co-operate in use, to form a channel, and wherein the second portion, intermediate the first and third portion, is bounded by two arcuate curves, and has an outwardly concave  
5 surface.

24. A blank of foldable sheet material which has fold lines whereby the blank can be folded to the acoustic horn of any one of the claims 1 to 23.

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